

学校编码：10384

学号：15620081152139

廈門大學

硕士学位论文

股指期货对股票现货市场波动性的影响——基于
日本、韩国和我国香港、台湾市场的实证研究

The Effect of Stock Index Futures on Stock
Spot Market' s Volatility ——A n empirical
study on Japan, Korea , HongKong and Taiwan

陈巧巧

指导教师：陈国进

专业名称：金融学(含保险学)

答辩日期：2011年5月

厦门大学学位论文原创性声明

本人呈交的学位论文是本人在导师指导下，独立完成的研究成果。本人在论文写作中参考其他个人或集体已经发表的研究成果，均在文中以适当方式明确标明，并符合法律规范和《厦门大学研究生学术活动规范(试行)》。

另外，该学位论文为()课题(组)的研究成果，获得()课题(组)经费或实验室的资助，在()实验室完成。(请在以上括号内填写课题或课题组负责人或实验室名称，未有此项声明内容的，可以不作特别声明。)

声明人(签名)：

年 月 日

厦门大学学位论文著作权使用声明

本人同意厦门大学根据《中华人民共和国学位条例暂行实施办法》等规定保留和使用此学位论文，并向主管部门或其指定机构送交学位论文(包括纸质版和电子版)，允许学位论文进入厦门大学图书馆及其数据库被查阅、借阅。本人同意厦门大学将学位论文加入全国博士、硕士学位论文共建单位数据库进行检索，将学位论文的标题和摘要汇编出版，采用影印、缩印或者其它方式合理复制学位论文。

本学位论文属于：

()1. 经厦门大学保密委员会审查核定的保密学位论文，于
年 月 日解密，解密后适用上述授权。

()2. 不保密，适用上述授权。

(请在以上相应括号内打“√”或填上相应内容。保密学位论文应是已经厦门大学保密委员会审定过的学位论文，未经厦门大学保密委员会审定的学位论文均为公开学位论文。此声明栏不填写的，默认为公开学位论文，均适用上述授权。)

声明人(签名)：

年 月 日

摘 要

本文以日本日经225股指期货、韩国KOSPI200股指期货以及我国香港恒生股指期货以及台湾TAIEX加权股指期货为研究对象。

首先,通过修正EGARCH和TGARCH模型在T分布(t)和广义误差分布(GED)假设下检验股指期货的推出对现货市场波动性的影响,研究发现:(1)香港恒生股指期货、台湾TAIEX加权股指期货的推出降低了现货市场的波动性;韩国KOSPI 200股指期货的推出对现货市场波动性没有显著影响;日本日经225股指期货的推出加剧了现货市场的波动性。(2)日本、韩国和香港、台湾现货股票市场均存在非对称性,表现为利空消息对现货市场波动性的影响大于利好消息对现货市场波动性的影响。

其次,按照期货市场交易量的变化,将期货市场的发展阶段划分为起步、发展以及成熟三个阶段,通过修正EGARCH模型在GED分布假设下检验各股指期货市场在起步阶段向发展阶段过渡、发展阶段向成熟阶段过渡时现货市场波动性的变化情况。研究发现:尽管起步阶段向发展阶段过渡时,各国家(地区)股指期货市场对现货市场波动性的影响不同,其中韩国KOSPI 200股指期货、香港恒生股指期货以及台湾TAIEX加权股指期货对现货市场波动性影响不显著,而日本日经225股指期货加剧了现货市场波动性,但进入到发展阶段向成熟阶段过渡时,各股指期货市场均降低了现货市场的波动性。

再次,利用修正TGARCH模型在GED分布假设下研究股指期货推出前以及推出后的三个阶段,现货市场非对称性的变化以及新旧信息对波动率影响力的变化。研究结果发现:(1)股指期货推出后,随着股指期货市场的成熟和发展,香港恒生股指期货和日本日经225股指期货市场非对称性下降;韩国KOSPI 200和台湾TAIEX股指期货市场非对称性呈现震荡上升的态势。(2)日本、香港和台湾股票现货市场上新消息对波动性冲击的影响力呈震荡下降态势,而旧消息对波动性的影响力呈震荡上升的态势;韩国股票现货市场上新信息对波动的影响持续下降,旧消息对波动性的影响力持续上升。

关键词: 股指期货; 波动性; 修正EGARCH和TGARCH模型; 非对称性

Abstract

In this paper, we study Japanese NIKKEI 225 stock index futures, Korea KOSPI 200 stock index futures and Hong Kong Hang Seng stock index futures, Taiwan TAIEX stock index futures. First, we explore adjusted EGARCH and TGARCH model to test the effect of introduction of index futures to the volatility of spot stock market under the assumption of T-distribution and Generalized Error Distribution (GED). We find: (1) the introduction of stock index futures reduce the stock spot markets volatility both in Hong Kong and Taiwan, and have no significant effect in Korea, while, increase the stock spot markets volatility in Japan; (2) the asymmetry exists in Japan, Korea, Hong Kong and Taiwan market, manifested as the impact of bad news on volatility of spot stock market is greater than good news. Second, we divide the future market into 3 stages: stage of initial, stage of development and stage of maturity according to volume of transactions. Then test the volatility of spot stock market over the stage changes through adjusted EGARCH model under the assumption of GED. We find: the effect of future market to the volatility of spot stock market are different among countries when the stage changes from initial to development, Future market has no significant effect to the volatility of spot stock market in Korea, Hong Kong and Taiwan market, but Future market increases the volatility of spot stock market in Japan market. However, Future market decreases the volatility of spot stock market in all the four markets when the stage changes from development to maturity. Last, we study asymmetry of the stock index market and the impact of new and old information to the volatility of spot market before the launch of index future and three stages after introduction of index future by adjusted TGARCH model under the assumption of GED. We find that: (1) the asymmetry of the market decreased along with the development of the stock index futures market in Japan and Hong Kong; and it is downwards with fluctuation in Korea

and Taiwan. (2) the impact of new information to the volatility of spot stock market is in trend of decreasing with fluctuation, but the impact of old information to the volatility of spot stock market is in trend of increasing with fluctuation as the development of future market in Japan, Hong Kong and Taiwan; and the impact of new information to the volatility of spot stock market is decreasing, while to old information is increasing in Korea.

Keywords: Stock Index Future; Volatility; Adjusted EGARCH and TGARCH Model; Asymmetric Effects

参考资料

- [1] Ruey S. Tsay. 金融时间序列分析[M]. 北京：机械工业出版社,2006.4：61-78.
- [2] 陈国进,陈巧巧,等. 日经股指期货与现货市场波动关联性研究[J]. 现代日本经济,2010(3)：14-22.
- [3] 黄玮. 股指期货对股指波动性影响的实证研究[D]. 湖南：湖南大学统计学院,2007.
- [4] 蒋瑛琨,彭艳. 股指期货到期日效应的形成原因[N]. 期货日报,2007.6.27,第3版.
- [5] 李华,程婧. 股指气候推出对市场波动性的影响研究——来自日本的实证分析[J]. 金融与经济,2006(2)：81-83.
- [6] 刘凤根,王小芳. 股指期货与股票市场波动关系的实证研究[J]. 财贸研究,2008(3).
- [7] 刘鸿儒. 金融期货[M]. 中国金融出版社,2010.6：28-29.
- [8] 刘庆富. 中国期货市场的波动性与风险控制研究[M]. 上海：上海财经大学出版社,2007.7：29-30.
- [9] 彭蕾,肖涛. 股指期货推出对股市波动性的影响研究——来自日本的实证分析[J]. 云南财贸学院学报,2004(5).
- [10] 宋劲松,付晓建. 沪深指数300期货投资策略与风险管理[M]. 中国经济出版社,2008.1：158-159.
- [11] 孙海军,唐利芳. 国外股指期货交易与现货市场关系的研究综述[J]. 商场现代化,2006(2)：298-299.
- [12] 席金平. 基于非参数GARCH模型的中国香港恒生股指期货收益率的研究[D]. 北京：北方工业大学经济学院,2009.
- [13] 刑精平. 股指期货：方案设计与运作分析[M]. 中国财政经济出版社,2007.4：220-222.
- [14] 徐国祥,吴泽智. 金融指数产品创新及其风险控制研究[M]. 上海：上海财经大学出版社,2005：38-40.
- [15] 徐凌. 股指期货投资策略[M]. 北京：中国金融出版社,2009.12：60-62.
- [16] 姚兴涛. 中国股指期货市场概论[M]. 北京：北京大学出版社,2001：3-8.
- 英文部分
- [17] Ali F. Darrat, Shafiqur Rahman and Maosen Zhong. On the Role of Futures Trading in Spot Market Fluctuations: Perpetrator of Volatility or Victim of Regret? [J]. Journal of Financial Research, Southern Finance Association and Southwestern Finance Association, 2002, 25(3): 431-444.
- [18] Antoniou Antonios and Phil Holmes. Futures Trading, Information and Spot Price Volatility: Evidence for the FTSE-10 Stock Index Futures Contract Using GARCH [J]. Journal of Banking & Finance, 1995, 19(1):117-129.
- [19] Antoniou Antonios, Phil Holmes and Richard Priestley. The Effects of Stock Index Futures Trading on Stock Index Volatility: An Analysis of the Asymmetric Response of Volatility to News [J]. Journal of Futures Markets, 1998, 18(2):473-484.
- [20] Bae, S. C., and Jo, H.. The Impact of Information Release on the Stock Price Volatility and Trading Volume: The Rights Offering Case [J]. Review of Quantitative Finance and Accounting, 1999, 13:153-169.
- [21] Beckett, Sean and Dan, Roberts. Will Increased Regulation of Stock Index Futures Reduce Stock Market Volatility [J]. Federal Reserve Board of Kansas City Economic Review, 1990, November/December 6:P33-46.
- [22] Bessler, D.A., and J. Yang. The Structure of Interdependence in International Stock Markets [J]. Journal of International Money and Finance, 2003, 22:261 – 87.
- [23] Bessembinder, Hendrik and Paul J. Seguin. Price Volatility, Trading Volume and Market Depth: Evidence from Futures Markets [J]. Journal of Financial and Quantitative Analysis, 1993, 28(1):21-39.
- [24] Bollen, N. A Note on the Impact of Options on Stock Return Volatility [J]. Journal of Banking and Finance, 1998, 22:1181-1191.
- [25] Bologna, P and L. Cavallo. Does the Introduction of Stock Index Futures Effectively Reduce Stock Market Volatility? Is the ‘Futures Effect’ Immediate? Evidence from the Italian Stock Exchange Using GARCH [J]. Applied Financial Economics, 2002, 12:183-192.
- [26] Brenner, Menachem, Marti Subrahmanyam and Jun Uno. The Volatility of the Japanese Stock Indices: Evidence from the Cash and Futures Markets in Japan [J]. Europe and International Financial Markets, 1994,

4:176-196.

- [27] Brorsen, B, Wade. Futures Trading, Transaction Costs, and Stock Market volatility [J]. *Journal of Futures Markets*, 1991, 11(2):153-163.
- [28] Chan, K. A Further Analysis of the Lead-Lag Relationship between the Cash Market and Stock Index Futures Market [J]. *Review of Financial Studies*, 1992, 5:123-152.
- [29] Chiang M-H and C-Y Wang. The Impact of Futures Trading on Spot Index Volatility: Evidence for Taiwan Index Futures [J]. *Applied Economics Letters*, 2002, 9:381-385.
- [30] Cohen, K., Maier, S. Schwartz, R and Whicomb, D.. *Inside the Microstructure of Securities Markets* [D]. Englewood Cliffs, NJ: Prentice Hall, 1986.
- [31] Cox, C. C.. Futures Trading and Market Information [J]. *Journal of Political Economy*, 1976, 84:1215-1237.
- [32] Cross, F.. The Behavior of Stock Price on Fridays and Mondays [J]. *Financial Analysts Journal*, 1973, 5:67-69.
- [33] Danthine, Jean-Pierre. Information, Futures Prices, and Stabilizing Speculation [J]. *Journal of Economic Theory*, 1995, 17:79-98.
- [34] Darrat, Ali F. and Shafiqur Rahman. Has Futures Trading Activity Caused Stock Price Volatility? [J]. *Journal of Futures Markets*, 1995, 15(5):537-557.
- [35] Edwards, F. R.. Does Futures Trading Increase Stock Market Volatility? [J]. *Financial Analysts Journal*, 1988, 44:63-69.
- [36] Edwards, Franklin R.. Does Futures Trading Increase Stock Market Volatility? [J]. *Financial Analysts Journal*, 1988a, Jan/Feb:63-69.
- [37] Edwards, Franklin R.. Futures Trading and Cash Market Volatility: Stock Index and Interest Rate Futures [J]. *Journal of Futures Markets*, 1988b, 8(4):421-439.
- [38] Eun C. S. and Shim S.. International Transmission of Stock Market Movements [J]. *Journal of Financial and Quantitative Analysis*, 1989, 24:241-256.
- [39] French, K, and R. Roll. Stock Return Variances: The Arrival of Information and the Reaction of Traders [J]. *Journal of Financial Economics*, 1986, 17:5-26.
- [40] French, K.R. Stock returns and the Weekend Effect [J]. *Journal of Financial Economics*, 1980, 8:55-69.
- [41] Freris A.F.. The Effects of the Introduction of Stock Index Futures on Stock Prices: The Experience of HongKong 1984-1987 [J]. *Pacific Basin Capital Market Research*, 1990:409-416.
- [42] Friedman, M. *The Case of Flexible Exchange Rates, Essays in Positive Economics* [M]. Chicago: University of Chicago Press, 1953:203-204.
- [43] Gammill JF, Perold AF. The Changing Character of Stock Market Liquidity [J]. *Journal of Portfolio Management*, 1989, 16(Spring):13-18.
- [44] Gulen, Huseyin and Stewart Mayhew. Stock Index Futures Trading and Volatility in International Equity Markets [J]. *The Journal of Futures Markets*, 2000, 20(7):661-685.
- [45] Gupta O P, Kumar M. Impact of Introduction of Index Futures on Stock Market Volatility: The Indian Experience [R]. 2002, (<http://www.pbfea2002.ntu.edu.sg/papers/2070.pdf>).
- [46] Harris, Lawrence. S&P500 Cash Stock Price Volatilities [J]. *Journal of Finance*, 1989, 46:1155-1175.
- [47] Hodgson, A. and D. Nicholls. The Impact of Index Futures Markets on Australian Share Market Volatility [J]. *Journal of Business Finance and Accounting*, 1991, 18:267-280.
- [48] Ilueca M. and Lafuente J.A.. The Effect of Spot and Futures Trading on Stock Index Market Volatility: A Nonparametric Approach [J]. *The Journal of Futures Trading on Stock Markets*, 2003, 23(9):841-858.
- [49] Kaldor, N.. *Essays on Economic Stability and Growth* [R]. Duckworth and Co., 1960.
- [50] Kamara, Avraham, Thomas W. Miller, and Andrew F. Siegel. The Effect of Futures Trading on the Stability of Standard and Poor 500 Returns [J]. *Journal of futures markets*, 1992, 12:645-658.
- [51] Koch, Paul D. and Timothy W. Koch. Index and Non-Index Price Volatilities Around the 1987 Market Cash [J]. *Journal of Business Research*, 1993, 26:189-199.
- [52] Kumar R, Sarin A, Shastri K. The Impact of Option Trading on the Market Quality of the underlying

- Security: An Empirical Analysis [J]. *Journal of Finance*, 1998, 53:717-732.
- [53]Kuserk, G.J., Locke, P.R.. Scalper Behavior in Futures Markets: An Empirical Examination [J]. *Journal of Futures Markets*, 1993, 13(4):409-431.
- [54]Lee S.B. and Ohk K.Y. Stock Index Futures Listing Structural Change in Time Varying Volatility [J]. *Journal of Futures Markets*, 1992, 12:493-509.
- [55]Maberly, Edwin D. Savid S. Allen and Roy F.Gilbert. Stock Index Futures and Cash Market Volatility [J]. *Financial Analysts Journal*, 1989, 45:74-44.
- [56]Merton, R.C. Financial Innovation and the Management and Regulation of Financial Institutions [J]. *Journal of Banking and Finance*, 1995, 19:461-481.
- [57]Nath, G. C.. Behaviour of Stock Market Volatility after Derivatives [R]. National Stock Exchange, Mumbai, 2003.
- [58]Raju M T, Karande K. Price Discovery and Volatility of NSE Futures Market [J]. *SEBI Bulletin*, 2003, 1(3):5-15.
- [59]Pericli, A. and G. Koutmos. Index Futures and Options and Stock Market Volatility [J]. *Journal of Futures Markets*, 1997, 17(8):957-974.
- [60]Pilar, C. and Rafael, S.. Does Derivatives Trading Destabilize the underlying Assets? Evidence from the Spanish Stock Market [J]. *Applied Economics letter*, 2002, 19.
- [61]Robinson, Gary. The Effect of Futures Trading on Cash Market Volatility: Evidence from the London Stock Exchange [J]. *Review of Futures Markets*, 1994, 14(2):429-459.
- [62]Ross,S.A.. Information and Volatility: The No-Arbitrage Matingale Approach to Timing and Resolution Irrelevancy [J]. *Journal of Finance*, 1989, 44:1-17.
- [63]Santoni. G. The October Crash: Some Evidence on the Cascade Theory Review [J]. *Federal Reserve Bank of St. Louis*, 1988(May):18-33.
- [64]Silber WL. The Economic Role of Financial Futures. In Annw Peck(Ed.), *Futures Markets: Their Economic Role* [J]. American Enterprise Institute for Public Policy Research, 1985.
- [65]Spyrou S.I.. Index Futures Trading and Spot Price Volatility: Evidence from an Emerging Market [J]. *Journal of Emerging Market Finance*, 2005, 4:151-167.
- [66]Stein JC. Informational Externalities and Welfare-Reducing Speculation [J]. *Journal of Political Economy*, 1987, 95:1123-1145.
- [67]Stoll, H.R., & Whaley, R.E.. Program Trading and Expiration-Day Effects [J]. *Financial Analysts Journal*, 1987, 17:16 – 28.
- [68]Stoll, H.R., & Whaley, R.E.. Expiration-Day Effects of the All Ordinaries Share Price Index Futures: Empirical Evidence and Alternative Settlement Procedures [J]. *Australian Journal of Management*, 1997, 22:139 – 174.
- [69]Subrahmanyam A. A Theory of Trading in Stock Index Futures [J]. *Review of Financcail Studies*, 1991, 4:17-51.
- [70]Sutcliffe, Charles M, S. Stock Index Futures: Theories and International Evidence [M]. International Thomson Business Press, 1997(2rd ed.):186-187.
- [71]Thenmozhi, M.. Futures Trading, Information and Spot Price Volatility of NSE-50 Index Futures Contract [R]. National Stock Exchange, Mumbai, 2002.
- [72]Thosar S., Trigeorgis S. Stock Volatility and Program Trading: Theory and Evidence [J]. *Journal of Applied Corporate Finance*, 1990, 2:91-96.
- [73]Yu, S. W.. Index Futures Trading and Spot Price Volatility [J]. *Applied Economic Letters*, 2001, 8(3):183-189.
- [74]Zhong M, Darrat AF, otero R. Price Discovery and Volatility Spillovers in Index Futures Markets: Some Evidence from Mexico [J]. *Journal of Banking and Finance*, 2004, 28:3037-3054.

Degree papers are in the "[Xiamen University Electronic Theses and Dissertations Database](#)". Full texts are available in the following ways:

1. If your library is a CALIS member libraries, please log on <http://etd.calis.edu.cn/> and submit requests online, or consult the interlibrary loan department in your library.
2. For users of non-CALIS member libraries, please mail to etd@xmu.edu.cn for delivery details.

厦门大学博硕士论文摘要库